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In national Application No

PCT/US 03/

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517359

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 G01L3/10 G01L5/00 G01M13/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G01L G01M

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

PAJ, EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 19, 5 June 2001 (2001-06-05) & JP 2001 033322 A (NTN CORP), 9 February 2001 (2001-02-09) abstract ---	1-29
Y	US 6 370 967 B1 (SATO DAISUKE ET AL) 16 April 2002 (2002-04-16) the whole document ---	1-29
A	US 6 289 748 B1 (RODRIGUEZ LORENZO GUADALUPE ET AL) 18 September 2001 (2001-09-18) column 3 -column 4; figures 1-7 --- -/--	1-29

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- * & * document member of the same patent family

Date of the actual completion of the international search

9 October 2003

Date of mailing of the international search report

16/10/2003

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INTERNATIONAL SEARCH REPORT

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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 503 714 A (WINTERHOFF HORST) 12 March 1985 (1985-03-12) abstract; figure 2 -----	1-29

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 03/0050

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
JP 2001033322	A	09-02-2001	NONE	
US 6370967	B1	16-04-2002	JP 11132877 A	21-05-1999
US 6289748	B1	18-09-2001	DE 10057468 A1	07-06-2001
US 4503714	A	12-03-1985	DE 3206008 C1	25-08-1983
			EP 0087002 A2	31-08-1983
			JP 58151533 A	08-09-1983